

Frequently Received Comments and Staff Responses

- 1. DEQ has received numerous comments and questions regarding potential human health and environmental impacts thought to be associated with the land application of biosolids. General concerns regarding human health impacts have included the pathogen and pollutant content of biosolids, exposure and impacts to human health expected to result from sludge-borne pathogens and metals, and land-application management practices used to protect human health. General concerns regarding environmental impacts have included impacts to air and water quality by land-applied biosolids, contamination of ground water by way of karst topographic features, and the adequacy of management practices for biosolids land application.**

DEQ RESPONSE: DEQ policy and guidance require all permits which authorize biosolids land application activities to include stringent limitations and requirements designed to protect human health and both surface and ground water quality. Many of those limitations and requirements were adopted from or are similar to those of the Virginia Department of Health's (VDH) Biosolids Use Regulation and EPA's Biosolids Rule (40 CFR, Part 503), and were developed by the Land Application of Sewage Sludge committee -- a cooperative effort of professionals and technical experts from DEQ, VDH, the Virginia Department of Conservation and Recreation (DCR) - Division of Soil and Water Conservation, Virginia Tech, and others.

As stated by EPA, the federal biosolids regulations under 40 CFR, Part 503 are designed to "protect public health and the environment from any reasonably anticipated adverse effects of certain pollutants and contaminants that may be present". Foremost among those "pollutants and contaminants" are pathogens and metals. Restrictions and limitations contained in the federal regulations for these pollutants and contaminants were developed with conservative assumptions that evaluated the risk associated with the most highly exposed individuals. The regulations are, therefore, considered protective of segments of the population at greater risk, and are certainly protective of those who are less frequently exposed to the biosolids.

With regard to pathogen reduction in Class B biosolids, state and federal agencies that regulate biosolids land application in Virginia make no attempt to conceal the fact that it is not as pathogenically safe to humans as biosolids which have been treated to meet Class A pathogen reduction. To address this situation, state and federal regulations impose access restrictions on sites to receive Class B biosolids. There are also regulatory restrictions for the access of grazing animals, and on the types of crops to be grown and harvested following the application of Class B biosolids to agricultural land, thereby providing further protection of human health.

All biosolids applied in bulk to agricultural land, whether they meet Class A or Class B pathogen reduction, must also meet the vector attraction reduction requirements of both federal and state regulations. Vectors would include mosquitoes, flies, rats and other vermin. Many of the same processes used to achieve pathogen reduction can also achieve vector attraction reduction. Vector attraction reduction further reduces the transfer of contaminants in biosolids from the application site to humans and other receptors.

DEQ cannot guarantee that any potable water well will be free from contamination. The most commonly occurring ground water contaminants within the Shenandoah Valley which can impact human health are nitrates and fecal coliform. These are typically associated with inadequate on-site sewage treatment systems or the application of animal wastes and/or commercial fertilizers in excess of crop nutrient needs. Permits authorizing land application activities contain numerous conditions and restrictions to: (1) prevent biosolids application at rates that would exceed the nutrient requirements of the crops to be grown; (2) buffer land features associated with karst topographic features to prevent direct groundwater contamination; and (3) buffer potable water supply wells to prevent indirect contamination of the well by biosolids applications. These restrictions are adequate to protect ground water from adverse impacts due to the land application of biosolids.

To protect surface water and ground water quality, permits authorizing land application activities restrict the quantity of Plant Available Nitrogen applied from all sources, including biosolids, to that amount which meets the crop needs for specific yields. The permits also require appropriate management of phosphorus loadings from biosolids, among other sources of applied phosphorus, to soils with high concentrations of available phosphorus. Buffer zones, comparable to or more protective than those of federal standards, are required by our permits to separate biosolids application areas from landscape features, such as streams, springs, rock outcrops; wells;

houses; and karst features, including sinkholes. Liquid biosolids application rates are also restricted to prevent runoff, and all biosolids applications are prohibited or restricted during adverse weather conditions on bare ground, excessive slopes, sites subject to frequent flooding, shallow soils, and soils with high water tables. Compliance with these nutrient loading requirements, buffer zones, application rates and timing, and siting restrictions serves to protect and enhance water quality.

Land application of biosolids on the proposed sites often results in the release of some odors, commencing with the actual sludge application procedure and diminishing within a day or two. However, the magnitude and the character of those odors is usually not significantly different from those associated with the spreading of livestock manures.

2. DEQ has also received comments that there is a lack of scientific research to support that land application of biosolids is safe and that current regulations are adequate to protect the health of the public.

DEQ RESPONSE: In order to fulfill the Clean Water Act requirement to periodically reassess the scientific basis of the Part 503 rule and to address public-health concerns, EPA asked the National Research Council (NRC) to conduct an independent evaluation of the technical methods and approaches used to establish the chemical and pathogen standards for biosolids, focusing specifically on human health protection and not ecological or agricultural issues. The result of this evaluation was a July 2002 report from the NRC on the land application of biosolids. Although the NRC report presented several recommendations for improving the ability to assess the sludge program, it also stated that “[t]here is no documented scientific evidence that the Part 503 rule has failed to protect public health”.

It should also be noted that the U.S. EPA denied a petition by the Center for Food Safety to ban land application of biosolids. In the Agency’s 22-page response, it found that the assertions made by the petitioners concerning the hazards of land-applied biosolids were not substantiated.

A Virginia Department of Health Biosolids Workgroup established by the State Health commissioner and comprised of eight District Health Directors (physicians) also evaluates the land application of biosolids. While this workgroup has concluded that a moratorium on the land application of biosolids is not necessary, they intend to establish a system for local health departments to review health issues related to biosolids land applications.

Although we are aware that some researchers have expressed concerns regarding the use of biosolids on agricultural land, the staff relies on EPA and State agency experts to review such research and provide any further recommendations. DEQ will routinely review the VPDES Permit Regulation and make necessary changes as new scientific information is available and federal rule changes. DEQ uses VDH's Biosolids Use Regulations (BUR) and DCR's Nutrient Management Standards and Criteria as guidance for project review and permit development, and DEQ will update its guidance as amendments to the BUR and the Nutrient Management Standards and Criteria are made. To date, land application of biosolids in accordance with current agency guidelines is still considered an appropriate and beneficial use of this material.

3. Some citizens have also expressed concerns that property values will decrease for those properties adjoining the fields where biosolids are to be land applied.

DEQ RESPONSE: Although property values issues are not within the purview of DEQ, no data or other documentation has been provided to DEQ staff to support the assertion that past land application activities have decreased the value of those properties adjoining the fields where the land application activities occurred. These activities are considered by the staff to be very similar to the land application of animal wastes as a component of normal agricultural practices.